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MAD 92 -12

SUPPER UND DIVISION

March 16, 2012

Mr. Jason Gunter Remedial Project Manager U.S. Environmental Protection Agency Region 7 - Superfund Branch 901 North 5th Street Kansas City, KS 66101

Re: The Doe Run Company - Leadwood Mine Tailings Site Monthly Progress Report

Dear Mr. Gunter:

As required by Article VI, Section 50 of the Unilateral Administrative Order (Docket No. CERCLA-07-2006-0272) for the referenced project and on behalf of The Doe Run Company, the progress report for the period January 1, 2012 through January 31, 2012 is enclosed. If you have any questions or comments, please call me at 573-638-5020 or Mark Nations at 573-518-0800.

Sincerely,

Ty'L. Morris, P.E., R.G.

Vice President

TLM/jms Enclosures

c: Mark Nations - TDRC

Matt Wohl - TDRC (electronic only)

Kathy Rangen - MDNR

Tim Skoglund - Barr Engineering

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SUPERFUND DIVISION

40383848 Superfund

Leadwood Mine Tailings Site

Leadwood, Missouri

Removal Action - Monthly Progress Report

Period: January 1, 2012 – January 31, 2012

1. Actions Performed or Completed This Period:

a. Work continued on the task of demobilizing earthmoving and ancillary equipment from the site. As of the end of the period, work on this task continued.

2. Data and Results Received This Period:

- a. During this period, water samples were collected from downstream of Leadwood Dam and the East Seep and Erosion Area, as well as from upstream and downstream of the confluence of Eaton Creek with Big River. The analytical results for this event are included with this progress report.
- b. During this period, the Ambient Air Monitoring Report for November 2011 and December 2011 were received. Any issues identified in these reports are discussed below. A copy of these documents has been sent to your attention.

The November 2011 Ambient Air Monitoring Report noted the following:

- The action levels for lead and dust were not exceeded.
- No samples were taken with the TSP and PM₁₀ monitors on 11/14/11 due to training.
- No samples were taken with the TSP and PM_{10} monitors on 11/23/11, 11/24/11, 11/25/11, and 11/26/11 due to the holiday.
- There was a QA blank filter associated with the Leadwood #2 (Office) TSP monitors and PM₁₀ on 11/28/11.

The December 2011 Ambient Air Monitoring Report noted the following:

- The action levels for lead and dust were not exceeded.
- No samples were taken with the Leadwood #2 (Office) TSP monitor on 12/15/11 due to mechanical failure. Upon discovery, the issue was corrected.
- No samples were taken with the Big River #4 QA TSP monitor on 12/20/11 due to mechanical failure. Upon discovery, the issue was corrected.
- No samples were taken with the Leadwood #3 (School) TSP monitor on 12/21/11 due to mechanical failure. Upon discovery, the issue was corrected.
- No samples were taken with the TSP and PM_{10} monitors on 12/22/11, 12/23/11, 12/26/11, 12/29/11, and 12/30/11 due to the holiday.

3. Scheduled Activities not Completed This Period:

a. None.

4. Planned Activities for Next Period:

- a. Continue vegetation maintenance activities. The use of biosolids will only be continued if a biosolids management plan has been submitted to and approved by EPA.
- b. It is anticipated that EPA will use this site as a soil repository in the future. Preparations for these activities will begin next period.
- c. Complete monthly water sampling activities as described in the Removal Action Work Plan.
- d. Complete air monitoring activities as described in the Removal Action Work Plan.

5. Changes in Personnel:

a. None.

6. Issues or Problems Arising This Period:

a. None.

7. Resolution of Issues or Problems Arising This Period:

a. None.



February 01, 2012

Allison Olds Barr Engineering Company 1001 Diamond Ridge Suite 1100 Jefferson City, MO 65109

TEL: (573) 638-5007 FAX: (573) 638-5001

RE: Leadwood MTS-25/86-0013

Dear Allison Olds:

TEKLAB, INC received 5 samples on 1/25/2012 10:41:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Michael L. Austin

Project Manager

(618)344-1004 ex 16

MAustin@teklabinc.com



WorkOrder: 12010900



Report Contents

http://www.teklabinc.com/

Client: Barr Engineering Company

Work Order: 12010900

Client Project: Leadwood MTS-25/86-0013

Report Date: 01-Feb-12

This reporting package includes the following:

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Quality Control Results	14
Receiving Check List	20
Chain of Custody	Appended



Definitions

http://www.teklabinc.com/

Client: Barr Engineering Company Work Order: 12010900

Client Project: Leadwood MTS-25/86-0013 Report Date: 01-Feb-12

Abbr Definition

- CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
- DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
- DNI Did not ignite
- DUP Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
- ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
- IDPH IL Dept. of Public Health
- LCS Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
- LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
 - MB Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
- MDL Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.
- MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
- MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
- MW Molecular weight
- ND Not Detected at the Reporting Limit

NELAP NELAP Accredited

- PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
- RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
- RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
- SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
- Surr Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
- TNTC Too numerous to count (> 200 CFU)

Qualifiers

- # Unknown hydrocarbon
- E Value above quantitation range
- M Manual Integration used to determine area response
- R RPD outside accepted recovery limits
- X Value exceeds Maximum Contaminant Level

- B Analyte detected in associated Method Blank
- H Holding times exceeded
- ND Not Detected at the Reporting Limit
 - S Spike Recovery outside recovery limits



Case Narrative

http://www.teklabinc.com/

Work Order: 12010900

Report Date: 01-Feb-12

Client: Barr Engineering Company

Client Project: Leadwood MTS-25/86-0013

Cooler Receipt Temp: 3.2 °C

Oklahoma

ODEQ

Locations and Accreditations

	Collinsville			Springfield		_	Kansas City
Address	5445 Horseshoe Lake Road		Address	3920 Pintail Dr		Address	8421 Nieman Road
	Collinsville, IL 62234-7425			Springfield, IL 627	11-9415		Lenexa, KS 66214
Phone	(618) 344-1004		Phone	(217) 698-1004		Phone	(913) 541-1998
Fax	(618) 344-1005		Fax	(217) 698-1005		Fax	(913) 541-1998
Email	jhriley@teklabinc.com		Email	kmcclain@teklabin	c.com	Email	dthompson@teklabinc.com
State		Dept		Cert#	NELAP	Exp Date	Lab
Illinois	1	TEPA		100226	NELAP	1/31/2013	Collinsville
Kansas	1	KDHE		E-10374	NELAP	1/31/2013	Collinsville
Louisia	nna l	LDEQ		166493	NELAP	6/30/2012	Collinsville
Louisia	ana l	LDEQ		166578	NELAP	6/30/2012	Springfield
Arkans	as	ADEQ		88-0966		3/14/2012	Collinsville
Illinois	. 1	IDPH		17584		4/30/2012	Collinsville
Kentuc	ky	UST		0073		5/26/2012	Collinsville
Missou	ri 1	MDNR		00930		4/13/2013	Collinsville

9978

8/31/2012

Collinsville



http://www.teklabinc.com/

Client: Barr Engineering Company

Work Order: 12010900

Client Project: Leadwood MTS-25/86-0013

Report Date: 01-Feb-12

Lab ID: 12010900-001

Client Sample ID: LW-001

Matrix: AQUEOUS Collection Date: 01/24/2012 8:00

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 375.2 REV 2.0 1993	(TOTAL)							
Sulfate	NELAP	150		453	mg/L	2	01/27/2012 19:07	R159326
STANDARD METHOD 18TH	ED. 4500-H B, LABOR	ATORY ANA	ALYZED					i diena
Lab pH	NELAP	1.00		7.83		1	01/26/2012 13:51	R159192
STANDARD METHODS 18TI	H ED. 2340 C					ia da es		1 364
Hardness, as (CaCO3)	NELAP	5		720	mg/L	1	01/25/2012 14:50	R159170
STANDARD METHODS 18TI	H ED. 2540 D							A. A. A.
Total Suspended Solids	NELAP	6		< 6	mg/L	1	01/27/2012 9:05	R159247
STANDARD METHODS 18TI	H ED. 2540 F				754			
Solids, Settleable	NELAP	0.1		< 0.1	ml/L	1	01/25/2012 12:53	R159156
STANDARD METHODS 18TH	H ED. 5310 C, ORGANI	IC CARBON						7.1
Total Organic Carbon (TOC)	NELAP	1.0		1.5	mg/L	1	01/26/2012 16:39	R159214
EPA 600 4.1.1, 200.7R4.4, M	ETALS BY ICP (DISSO	LVED)						
Cadmium	NELAP	2.00		4.70	µg/L	1	01/27/2012 13:52	74624
Zinc	NELAP	10.0		4090	μg/L	1	01/26/2012 21:33	74624
EPA 600 4.1.4, 200.7R4.4, M	ETALS BY ICP (TOTAL	L)			els S			
Cadmium	NELAP	2.00		5.10	µg/L	1	01/26/2012 11:35	74597
Zinc	NELAP	10.0		5380	μg/L	1	01/26/2012 11:35	74597
STANDARD METHODS 18TH	H ED. 3030 B, 3113 B,	METALS BY	GFAA (ISSOLVED)				
Lead	NELAP	2.00	•	2.05	µg/L	1	01/26/2012 11:32	74611
STANDARD METHODS 18TH	H ED. 3030 E, 3113 B, I	METALS BY	GFAA					中国发生
Lead	NELAP	2.00		3.98	μg/L	1	01/26/2012 8:10	74600



http://www.teklabinc.com/

Client: Barr Engineering Company

Work Order: 12010900

Client Project: Leadwood MTS-25/86-0013

Report Date: 01-Feb-12

Lab ID: 12010900-002

Client Sample ID: LW-002

Matrix: AQUEOUS Collection Date: 01/24/2012 9:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 375.2 REV 2.0 1993	(TOTAL)							
Sulfate	NELAP	150		487	mg/L	2	01/27/2012 19:09	R159326
STANDARD METHOD 18TH	ED. 4500-H B, LABOR	ATORY AN	ALYZED		E Parties	destinati		te said
Lab pH	NELAP	1.00		7.82		1	01/26/2012 13:52	R159192
STANDARD METHODS 18TI	H ED. 2340 C		and the same		A Section 1	Sieg de la company		
Hardness, as (CaCO3)	NELAP	5		740	mg/L	1	01/25/2012 14:50	R159170
STANDARD METHODS 18TI	H ED. 2540 D							
Total Suspended Solids	NELAP	6		< 6	mg/L	1	01/27/2012 9:05	R159247
STANDARD METHODS 18TI	H ED. 2540 F							Y-, Value
Solids, Settleable	NELAP	0.1		< 0.1	ml/L	1	01/25/2012 12:53	R159156
STANDARD METHODS 18TH	HED. 5310 C, ORGANI	C CARBON						
Total Organic Carbon (TOC)	NELAP	1.0		1.3	mg/L	1	01/26/2012 16:46	R159214
EPA 600 4.1.1, 200.7R4.4, M	ETALS BY ICP (DISSO	LVED)						
Cadmium	NELAP	2.00		3.40	μg/L	1	01/27/2012 13:57	74624
Zinc	NELAP	10.0	S	5870	μg/L	1	01/27/2012 13:57	74624
Zn - Sample concentration was g	reater than 5 times the spik	ke concentrati	on.					
EPA 600 4.1.4, 200.7R4.4, M	ETALS BY ICP (TOTAL	-)		THE STATE OF				
Cadmium	NELAP	2.00		4.50	µg/L	1	01/26/2012 12:08	74597
Zinc	NELAP	10.0		6130	µg/L	1	01/26/2012 12:08	74597
STANDARD METHODS 18TH	HED. 3030 B, 3113 B, I	METALS BY	GFAA (I	DISSOLVED)				
Lead	NELAP	2.00	X	13.8	μg/L	1	01/26/2012 11:42	74611
STANDARD METHODS 18TH	1 ED. 3030 E, 3113 B, I	METALS BY	GFAA					
Lead	NELAP	2.00	X	27.0	μg/L	1	01/26/2012 8:13	74600



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Client: Barr Engineering Company

Work Order: 12010900

Client Project: Leadwood MTS-25/86-0013

Report Date: 01-Feb-12

Lab ID: 12010900-003

Client Sample ID: LW-Dup

Matrix: AQUEOUS

Collection Date: 01/24/2012 9:25

Man A A A A A A A A A A A A A A A A A A A		0.20							
Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch	
EPA 600 375.2 REV 2.0 1993	(TOTAL)		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					3.1 44	
Sulfate	NELAP	200		470	mg/L	20	01/30/2012 19:41	R159331	
STANDARD METHOD 18TH	ED. 4500-H B, LABOR	ATORY AN	ALYZED	19 (6.4)					
Lab pH	NELAP	1.00		7.96		1	01/26/2012 13:54	R159192	
STANDARD METHODS 18TH	I ED. 2340 C								
Hardness, as (CaCO3)	NELAP	5		760	mg/L	1	01/25/2012 14:50	R159170	
STANDARD METHODS 18TH	I ED. 2540 D								
Total Suspended Solids	NELAP	6		< 6	mg/L	1	01/27/2012 9:05	R159247	
STANDARD METHODS 18TH	I ED. 2540 F								
Solids, Settleable	NELAP	0.1		< 0.1	ml/L	1	01/25/2012 12:53	R159156	
STANDARD METHODS 18TH	ED. 5310 C, ORGANI	C CARBON				Y NEW Y		The state of the s	
Total Organic Carbon (TOC)	NELAP	1.0		1.3	mg/L	1	01/26/2012 16:53	R159214	
EPA 600 4.1.1, 200.7R4.4, MI	ETALS BY ICP (DISSO	LVED)						180	
Cadmium	NELAP	2.00		3.30	μg/L	1	01/27/2012 15:39	74624	
Zinc	NELAP	10.0		5160	μg/L	1	01/26/2012 21:57	74624	
EPA 600 4.1.4, 200.7R4.4, MI	ETALS BY ICP (TOTAL	-)	12,	A 5 %			1. 美国基础的		
Cadmium	NELAP	2.00		4.20	μg/L	1	01/26/2012 12:14	74597	
Zinc	NELAP	10.0		6040	μg/L	1	01/26/2012 12:14	74597	
STANDARD METHODS 18TH	ED. 3030 B, 3113 B,	METALS BY	GFAA (I	DISSOLVED)		× 11.			
Lead	NELAP	2.00	X	12.9	μg/L	1	01/26/2012 11:45	74611	
STANDARD METHODS 18TH	I ED. 3030 E, 3113 B, I	METALS BY	GFAA		22				
Lead	NELAP	2.00	X	27.2	μg/L	1	01/26/2012 8:32	74600	



http://www.teklabinc.com/

Client: Barr Engineering Company

Work Order: 12010900

Client Project: Leadwood MTS-25/86-0013

Report Date: 01-Feb-12

Lab ID: 12010900-004

Client Sample ID: LW-DS

Matrix: AQUEOUS Collection Date: 01/24/2012 9:45

Analyses	Certification	RL Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 375.2 REV 2.0 1993	(TOTAL)						
Sulfate	NELAP	20	34	mg/L	2	01/30/2012 19:44	R159331
STANDARD METHOD 18TH	ED. 4500-H B, LABOR	ATORY ANALYZED	the state of the		and was f		
Lab pH	NELAP	1.00	8.05		1	01/26/2012 13:57	R159192
STANDARD METHODS 18TH	HED. 2340 C						- 15 H. S.
Hardness, as (CaCO3)	NELAP	5	260	mg/L	1	01/25/2012 14:50	R159170
STANDARD METHODS 18TH	HED. 2540 D		1.73	洋型温度			
Total Suspended Solids	NELAP	6	< 6	mg/L	1	01/27/2012 9:18	R159247
STANDARD METHODS 18TH	ED. 5310 C, ORGANI	C CARBON				36.5	
Total Organic Carbon (TOC)	NELAP	1.0	1.2	mg/L	1	01/26/2012 16:59	R159214
EPA 600 4.1.1, 200.7R4.4, MI	ETALS BY ICP (DISSO	LVED)					
Cadmium	NELAP	2.00	< 2.00	μg/L	1	01/27/2012 15:45	74624
Zinc	NELAP	10.0	29.5	μg/L	1	01/26/2012 22:03	74624
EPA 600 4.1.4, 200.7R4.4, MI	ETALS BY ICP (TOTAL	-)					
Cadmium	NELAP	2.00	< 2.00	μg/L	1	01/26/2012 12:19	74597
Zinc	NELAP	10.0	34.2	μg/L	1	01/26/2012 12:19	74597
STANDARD METHODS 18TH	ED. 3030 B, 3113 B, I	METALS BY GFAA (D	ISSOLVED)		网络正为		
Lead	NELAP	2.00	< 2.00	μg/L	1	01/26/2012 11:49	74611
STANDARD METHODS 18TH	ED. 3030 E, 3113 B, I	METALS BY GFAA				No This is a second	
Lead	NELAP	2.00	< 2.00	µg/L	1	01/26/2012 8:35	74600



http://www.teklabinc.com/

Client: Barr Engineering Company

Work Order: 12010900

Client Project: Leadwood MTS-25/86-0013

Report Date: 01-Feb-12

Lab ID: 12010900-005

Client Sample ID: LW-US

Matrix: AQUEOUS

Collection Date: 01/24/2012 7:30

Analyses	Certification	\mathbf{RL}	Qual	Result	Units	\mathbf{DF}	Date Analyzed	Batch
EPA 600 375.2 REV 2.0 1993	(TOTAL)				1			
Sulfate	NELAP	20		22	mg/L	2	01/30/2012 19:49	R159331
STANDARD METHOD 18TH	ED. 4500-H B, LABOR	ATORY AN	ALYZED			7.		
Lab pH	NELAP	1.00		8.10		1	01/26/2012 13:59	R159192
STANDARD METHODS 18TH	I ED. 2340 C							
Hardness, as (CaCO3)	NELAP	5		220	mg/L	1	01/25/2012 14:50	R159170
STANDARD METHODS 18TH	ED. 2540 D						duety.	
Total Suspended Solids	NELAP	6		< 6	mg/L	1	01/27/2012 9:18	R159247
STANDARD METHODS 18TH	ED. 5310 C, ORGANI	C CARBON						
Total Organic Carbon (TOC)	NELAP	1.0		1.3	mg/L	1	01/26/2012 17:37	R159214
EPA 600 4.1.1, 200.7R4.4, MI	ETALS BY ICP (DISSO	LVED)						- 4
Cadmium	NELAP	2.00		< 2.00	μg/L	1	01/27/2012 15:51	74624
Zinc	NELAP	10.0		< 10.0	μg/L	1	01/26/2012 22:08	74624
EPA 600 4.1.4, 200.7R4.4, MI	TALS BY ICP (TOTAL	_)						
Cadmium	NELAP	2.00		< 2.00	μg/L	1	01/26/2012 12:25	74597
Zinc	NELAP	10.0		< 10.0	μg/L	1	01/26/2012 12:25	74597
STANDARD METHODS 18TH	ED. 3030 B, 3113 B,	METALS BY	GFAA (I	DISSOLVED)			A CONTRACTOR OF THE PARTY OF TH	
Lead	NELAP	2.00		< 2.00	μg/L	1	01/26/2012 11:52	74611
STANDARD METHODS 18TH	ED. 3030 E, 3113 B, I	METALS BY	GFAA					
Lead	NELAP	2.00		< 2.00	μg/L	1	01/26/2012 8:45	74600



Sample Summary

http://www.teklabinc.com/

Client: Barr Engineering Company

Client Project: Leadwood MTS-25/86-0013

Work Order: 12010900 Report Date: 01-Feb-12

Lab Sample ID	Client Sample ID	Matrix	Fractions	Collection Date	
12010900-001	LW-001	Aqueous	5	01/24/2012 8:00	
12010900-002	LW-002	Aqueous	5	01/24/2012 9:10	
12010900-003	LW-Dup	Aqueous	5	01/24/2012 9:25	
12010900-004	LW-DS	Aqueous	5	01/24/2012 9:45	
12010900-005	LW-US	Aqueous	5	01/24/2012 7:30	



Dates Report

http://www.teklabinc.com/

Client: Barr Engineering Company Work Order: 12010900

Client Project: Leadwood MTS-25/86-0013 Report Date: 01-Feb-12

Sample ID	Client Sample ID Test Name	Collection Date	Received Date Prep Date/Time	Analysis Date/Time
12010900-001A	LW-001	01/24/2012 8:00	1/25/2012 10:41:00 AM	
	Standard Methods 18th Ed. 2540 F			01/25/2012 12:53
12010900-001B	LW-001	01/24/2012 8:00	1/25/2012 10:41:00 AM	
	EPA 600 375.2 Rev 2.0 1993 (Total)			01/27/2012 19:07
	Standard Method 18th Ed. 4500-H B, Labor	atory Analyzed		01/26/2012 13:51
	Standard Methods 18th Ed. 2340 C	,		01/25/2012 14:50
	Standard Methods 18th Ed. 2540 D			01/27/2012 9:05
12010900-001C	LW-001	01/24/2012 8:00	1/25/2012 10:41:00 AM	
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (7	'otal)	01/25/2012 14:25	01/26/2012 11:35
	Standard Methods 18th Ed. 3030 E, 3113 B,		01/25/2012 15:37	01/26/2012 8:10
12010900-001D	LW-001	01/24/2012 8:00	1/25/2012 10:41:00 AM	
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (I	Dissolved)	01/26/2012 10:54	01/26/2012 21:33
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (I	,	01/26/2012 10:54	01/27/2012 13:52
	Standard Methods 18th Ed. 3030 B, 3113 B,		01/26/2012 7:53	01/26/2012 11:32
12010900-001E	LW-001	01/24/2012 8:00	1/25/2012 10:41:00 AM	01/20/2012 11.52
7.7	Standard Methods 18th Ed. 5310 C, Organic			01/26/2012 16:39
12010900-002A	LW-002	01/24/2012 9:10	1/25/2012 10:41:00 AM	01/20/2012 10:59
	Standard Methods 18th Ed. 2540 F			01/25/2012 12:53
12010900-002B	LW-002	01/24/2012 9:10	1/25/2012 10:41:00 AM	01/23/2012 12:33
	EPA 600 375.2 Rev 2.0 1993 (Total)			01/27/2012 19:09
	Standard Method 18th Ed. 4500-H B, Labora	stom. Analyzad		01/26/2012 13:52
	Standard Methods 18th Ed. 2340 C	nory Anaryzed		01/25/2012 14:50
	Standard Methods 18th Ed. 2540 D			01/27/2012 9:05
12010900-002C	LW-002	01/24/2012 9:10	1/25/2012 10:41:00 AM	01/2//2012 9.03
				01/26/2012 12:09
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (T Standard Methods 18th Ed. 3030 E, 3113 B,		01/25/2012 14:25	01/26/2012 12:08
12010900-002D	LW-002	01/24/2012 9:10	01/25/2012 15:37 1/25/2012 10:41:00 AM	01/26/2012 8:13
12010900-002D				
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (I	,	01/26/2012 10:54	01/27/2012 13:57
	Standard Methods 18th Ed. 3030 B, 3113 B,		01/26/2012 7:53	01/26/2012 11:42
12010900-002E	LW-002	01/24/2012 9:10	1/25/2012 10:41:00 AM	
	Standard Methods 18th Ed. 5310 C, Organic	Carbon		01/26/2012 16:46
12010900-003A	LW-Dup	01/24/2012 9:25	1/25/2012 10:41:00 AM	
	Standard Method 18th Ed. 4500-H B, Labora	tory Analyzed		01/26/2012 13:54
	Standard Methods 18th Ed. 2540 D			01/27/2012 9:05
	Standard Methods 18th Ed. 2540 F			01/25/2012 12:53
12010900-003B	LW-Dup	01/24/2012 9:25	1/25/2012 10:41:00 AM	



Dates Report

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Work Order: 12010900

Client: Barr Engineering Company Report Date: 01-Feb-12 Client Project: Leadwood MTS-25/86-0013

Sample ID	Client Sample ID	Collection Date	Received Date	
	Test Name		Prep Date/Time A	nalysis Date/Time
	EPA 600 375.2 Rev 2.0 1993 (Total)			01/30/2012 19:41
	Standard Methods 18th Ed. 2340 C			01/25/2012 14:50
12010900-003C	LW-Dup	01/24/2012 9:25	1/25/2012 10:41:00 AM	
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)		01/25/2012 14:25	01/26/2012 12:14
	Standard Methods 18th Ed. 3030 E, 3113 B, Metals by GF	⁷ AA	01/25/2012 15:37	01/26/2012 8:32
12010900-003D	LW-Dup	01/24/2012 9:25	1/25/2012 10:41:00 AM	
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)		01/26/2012 10:54	01/26/2012 21:57
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)		01/26/2012 10:54	01/27/2012 15:39
	Standard Methods 18th Ed. 3030 B, 3113 B, Metals by GF	FAA (Dissolved)	01/26/2012 7:53	01/26/2012 11:45
12010900-003E	LW-Dup	01/24/2012 9;25	1/25/2012 10:41:00 AM	
	Standard Methods 18th Ed. 5310 C, Organic Carbon			01/26/2012 16:53
12010900-004A	LW-DS	01/24/2012 9:45	1/25/2012 10:41:00 AM	
	Standard Method 18th Ed. 4500-H B, Laboratory Analyze	d		01/26/2012 13:57
	Standard Methods 18th Ed. 2540 D			01/27/2012 9:18
12010900-004B	LW-DS	01/24/2012 9:45	1/25/2012 10:41:00 AM	
	EPA 600 375.2 Rev 2.0 1993 (Total)			01/30/2012 19:44
	Standard Methods 18th Ed. 2340 C			01/25/2012 14:50
12010900-004C	LW-DS	01/24/2012 9:45	1/25/2012 10:41:00 AM	
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)		01/25/2012 14:25	01/26/2012 12:19
	Standard Methods 18th Ed. 3030 E, 3113 B, Metals by GF	AA	01/25/2012 15:37	01/26/2012 8:35
12010900-004D	LW-DS	01/24/2012 9:45	1/25/2012 10:41:00 AM	
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)		01/26/2012 10:54	01/26/2012 22:03
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)		01/26/2012 10:54	01/27/2012 15:45
	Standard Methods 18th Ed. 3030 B, 3113 B, Metals by GF	AA (Dissolved)	01/26/2012 7:53	01/26/2012 11:49
12010900-004E	LW-DS	01/24/2012 9:45	1/25/2012 10:41:00 AM	
	Standard Methods 18th Ed. 5310 C, Organic Carbon			01/26/2012 16:59
12010900-005A	LW-US	01/24/2012 7:30	1/25/2012 10:41:00 AM	
	Standard Method 18th Ed. 4500-H B, Laboratory Analyzed	d		01/26/2012 13:59
	Standard Methods 18th Ed. 2540 D			01/27/2012 9:18
12010900-005B	LW-US	01/24/2012 7:30	1/25/2012 10:41:00 AM	
	EPA 600 375.2 Rev 2.0 1993 (Total)			01/30/2012 19:49
	Standard Methods 18th Ed. 2340 C			01/25/2012 14:50
12010900-005C	LW-US	01/24/2012 7:30	1/25/2012 10:41:00 AM	
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)		01/25/2012 14:25	01/26/2012 12:25
	Standard Methods 18th Ed. 3030 E, 3113 B, Metals by GF.	AA	01/25/2012 15:37	01/26/2012 8:45
12010900-005D	LW-US	01/24/2012 7:30	1/25/2012 10:41:00 AM	



Dates Report

http://www.teklabinc.com/

Client: Barr Engineering Company

Work Order: 12010900

Client Project: Leadwood MTS-25/86-0013

Sample ID	Client Sample ID	Collection Date	Received Date	
	Test Name	THE COLUMN TO SEE .	Prep Date/Time	Analysis Date/Time
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)		01/26/2012 10:54	01/26/2012 22:08
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)	01/26/2012 10:54	01/27/2012 15:51	
	Standard Methods 18th Ed. 3030 B, 3113 B, Metals by 0	GFAA (Dissolved)	01/26/2012 7:53	01/26/2012 11:52
12010900-005E	LW-US	01/24/2012 7:30	1/25/2012 10:41:00 AM	
	Standard Methods 18th Ed. 5310 C, Organic Carbon			01/26/2012 17:37



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Client: Barr Engineering Company

Work Order: 12010900

Client Project: Leadwood MTS-25/86-0013

EPA 600 375.2 RE				11.14				2 4 24 2 2 2 2		7	
Batch R159326	SampType:	MBLK		Units mg/L							
SampID: ICB/MBLK											Date Analyzed
Analyses			RL	Qual		Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Sulfate			75		< 75						01/27/2012
Batch R159326 SampID: MBLK DI	SampType:	MBLK		Units mg/L							Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Sulfate			75		< 75						01/27/2012
Batch R159326 SampID: ICV/LCS	SampType:	LCS		Units mg/L							Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Sulfate			75		146	150	0	97.4	90	110	01/27/2012
Batch R159331 SampID: ICB/MBLK	SampType:	MBLK		Units mg/L							Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Sulfate			10		< 10						01/30/2012
Batch R159331 SampID: ICV/LCS	SampType:	LCS		Units mg/L							Date
Analyses			RL	Oual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Sulfate			10		19	20	0	97.4	90	110	01/30/2012
Batch R159331 SamplD: 12010900-0		MS	RL	Units mg/L Oual	Result	Snike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate			20	Quai	40	20	21.78	91.9	85	115	01/30/2012
Batch R159331 SampID: 12010900-0	SampType:	MSD		Units mg/L					RPD	Limit 10	
	מפואו מפטנ		DI	0 1	D 1	G 11	CDV Dof Vol	0/ DEC	DDD Dof \	/al %RPD	Date Analyzed
Analyses			RL	Qual			SPK Ref Val				
Sulfate			20		41	20	21.78	96.1	40.16	2.07	01/30/2012
STANDARD METHO	OD 18TH ED	. 4500-	HB, LA	BORATORY A	NALYZE	D				t in the state of	
Batch R159192 SampID: LCS	SampType:	LCS		Units							Date
•			DI	0 1	D 1	G '1	SPK Ref Val	% DEC	Low Limit	High Limit	Analyzed
Analyses			RL	Qual	Result	Spike	SEK Kei vai	MEC	LOW LITTIL	riigii Liitiit	



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Client: Barr Engineering Company

Work Order: 12010900

Client Project: Leadwood MTS-25/86-0013

STANDARD METHOD 18TH EI	D. 4500	HB, LA	ABORATORY	ANALYZE	D	<u></u>	and the		-12	
Batch R159192 SampType:	DUP		Units					RPD	Limit 10	
SampID: 12010900-001BDUP										Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref \	/al %RPD	Analyzed
Lab pH		1.00		7.86				7.830	0.38	01/26/2012
Batch R159192 SampType:	DUP		Units					RPD	Limit 10	
SampID: 12010900-002BDUP										Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref \	/al %RPD	Analyzed
Lab pH		1.00		7.83				7.820	0.13	01/26/2012
Batch R159192 SampType:	DUP		Units					RPD	Limit 10	
SampID: 12010900-003ADUP										Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref \	/al %RPD	Analyzed
Lab pH		1.00		7.96				7.960	0.00	01/26/2012
Batch R159192 SampType:	DUP		Units					RPD	Limit 10	
SampID: 12010900-004ADUP										Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref \	/al %RPD	Analyzed
Lab pH		1.00		8.03				8.050	0.25	01/26/2012
Batch R159192 SampType:	DUP		Units					RPD	Limit 10	
SampID: 12010900-005ADUP										Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref \	al %RPD	Analyzed
Lab pH		1.00		8.09				8.100	0.12	01/26/2012
STANDARD METHODS 18TH E	D. 234	0 C				ba.				
Batch R159170 SampType:	MBLK		Units mg/L							
SampID: MB-R159170										Date Analyzed
Analyses		RL	Qual		Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Hardness, as (CaCO3)		5		< 5						01/25/2012
Batch R159170 SampType:	LCS		Units mg/L							
SampID: LCS-R159170										Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Hardness, as (CaCO3)		5		1000		0	100.0	90	110	01/25/2012
Batch R159170 SampType:	MS		Units mg/L							
SampID: 12010900-004BMS										Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed



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Client: Barr Engineering Company

Work Order: 12010900

Client Project: Leadwood MTS-25/86-0013

Chefit Project: Leadwood M	13-23/	00-001	3					Report	Date: 01-Fe	:0-12
STANDARD METHODS 18TH	ED. 234	10 C			-					
Batch R159170 SampType:	MSD		Units mg/L					RPI	D Limit 10	
SampID: 12010900-004BMSD										Date Analyzed
Analyses		RL	Qual		Spike	SPK Ref Val			Val %RPD	
Hardness, as (CaCO3)		5		660	400	260.0	100.0	660.0	0.00	01/25/2012
STANDARD METHODS 18TH	ED. 254	10 D						(18. j.		
Batch R159247 SampType: SampID: MBLK	MBLK		Units mg/L							Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Total Suspended Solids		6.00		< 6.00						01/27/2012
Total Suspended Solids		6		< 6						01/27/2012
Batch R159247 SampType: SampID: LCS	LCS		Units mg/L							Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Total Suspended Solids		6		90	100	0	90.0	85	115	01/27/2012
Total Suspended Solids		6		108	100	0	108.0	85	115	01/27/2012
Total Suspended Solids		6		100	100	0	100.0	85	115	01/27/2012
Total Suspended Solids		6		105	100	0	105.0	85	115	01/27/2012
Total Suspended Solids		6		96	100	0	96.0	85	115	01/27/2012
Total Suspended Solids		6		96	100	0	96.0	85	115	01/27/2012
Total Suspended Solids		6		98	100	0	98.0	85	115	01/27/2012
Batch R159247 SampType:	DUP		Units mg/L					RPD	Limit 15	
SampID: 12010900-003A DUP Analyses		RL	Oual	Result	Snike	SPK Ref Val	%REC	RPD Ref	Val %RPD	Date Analyzed
Total Suspended Solids		6		< 6	Spare			0	0.00	01/27/2012
STANDARD METHODS 18TH E	ED. 531	0 C, OR	GANIC CARB	ON	10.00					
Batch R159214 SampType:			Units mg/L							
SampID: ICB/MBLK										Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Total Organic Carbon (TOC)		1.0		< 1.0						01/26/2012
Batch R159214 SampType: SampID: ICV/LCS	LCS		Units mg/L							Date
Analyses		RL	Oual	Result	Snike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Total Organic Carbon (TOC)		5.0	Quai	49.0	48.2	0	101.7	89.6	109.5	01/26/2012
Batch R159214 SampType:	MS	,	Units mg/L							
SampID: 12010900-005EMS			-							Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Total Organic Carbon (TOC)		1.0		5.9	5.0	1.270	92.2	80	120	01/26/2012



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Client: Barr Engineering Company

Work Order: 12010900

Client Project: Leadwood MTS-25/86-0013

STANDARD METH			U C, OR		UN						
Batch R159214 SampID: 12010900-	SampType: 005EMSD	MSD		Units mg/L					RPD) Limit 15	Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref	Val %RPD	Analyzed
Total Organic Cart	oon (TOC)		1.0		6.1	5.0	1.270	97.0	5.880	4.00	01/26/201
EPA 600 4.1.1, 200).7R4.4, MET	ALS B	Y ICP (E	DISSOLVED)						7. gt] 14	
Batch 74624	SampType:	MBLK		Units µg/L							
SampID: MB-74624											Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Cadmium			2.00		< 2.00	2.00	0	0	-100	100	01/27/201
Zinc			10.0		< 10.0	10.0	0	0	-100	100	01/26/2012
Batch 74624	SampType:	LCS		Units µg/L							
SampID: LCS-74624	4										Date
Analyses			RL	Qual	Result		SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Cadmium			2.00		47.9	50.0	0	95.8	85	115	01/27/2012
Zinc			10.0		436	500	0	87.2	85	115	01/26/2012
Batch 74624 SamplD: 12010900-	SampType: 002DMS	MS		Units µg/L							Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Cadmium			2.00		49.5	50.0	3.4	92.2	75	125	01/27/2012
Zinc			10.0	S	6230	500	5870	72.2	75	125	01/27/2012
Batch 74624 SampID: 12010900-	SampType:	MSD		Units µg/L					RPD	Limit 20	
	002DW3D		DI	0 1	D 1	a 1	CDV Dof Val	0/ DEC	DDD Dof \	/al %RPD	Date Analyzed
Analyses			RL	Qual			SPK Ref Val				
Cadmium Zinc			2.00 10.0	S	49.2 6180	50.0 500	3.4 5870	91.6 62.6	49.5 6231	0.61 0.77	01/27/2012 01/27/2012
EDA 600 4 4 4 200	7044 MET	ALC D	V IOD /T	OTAL							一
EPA 600 4.1.4, 200 Batch 74597	SampType:			Units µg/L	<u>a</u> utorio de la composição de la composi						
SampID: MB-74597	Samp Type.	MIDER		Omo pg/L							Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Cadmium			2.00		< 2.00	2.00	0	0	-100	100	01/26/2012
Zinc			10.0		< 10.0	10.0	0	0	-100	100	01/26/2012
Batch 74597 SampID: LCS-74597	SampType:	LCS		Units µg/L							Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Cadmium			2.00		50.0	50.0		100.0	85	115	01/26/2012
Oddillidill											



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Client: Barr Engineering Company

Work Order: 12010900

Client Project: Leadwood MTS-25/86-0013

EPA 600 4.1.4, 200.7R4.4, ME	TALS BY ICP	(TOTAL)				41 444		Section 1	
Batch 74597 SampType: SampID: 12010900-001CMS	MS	Units µg/L							Date
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Cadmium	2.00		51.8	50.0	5.1	93.4	75	125	01/26/2012
Zinc	10.0)	5770	500	5377	79.0	75	125	01/26/2012
Batch 74597 SampType: SampID: 12010900-001CMSD	MSD	Units µg/L					RPD	Limit 20	Date
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref	/al %RPD	Analyzed
Cadmium	2.00)	52.1	50.0	5.1	94.0	51.8	0.58	01/26/2012
Zinc	10.0)	5850	500	5377	95.0	5772	1.38	01/26/2012
STANDARD METHODS 18TH	ED. 3030 B, 3	113 B, METALS	BY GFA	A (DISS	OLVED)	San Maria		2000年	7-042
Batch 74611 SampType: SampID: MB-74611	MBLK	Units µg/L							Date
Analyses	RL	Oual	Result	Snike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Lead	2.00		< 2.00	2.00	0	0	-100	100	01/26/2012
Batch 74611 SampType: SampID: LCS-74611	LCS	Units µg/L							Date
Analyses	RL	Oual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Lead	2.00)	15.5	15.0	0	103.2	85	115	01/27/2012
Batch 74611 SampType: SampID: 12010900-001DMS		Units µg/L			ODK D. CV-1	N/DEQ		18.12.2	Date Analyzed
Analyses	RL	Qual	Result	орше	SPK Ref Val			High Limit	
Lead	2.00	1	13.8	15.0	2.0461	78.5	70	130	01/26/2012
Batch 74611 SampType: SampID: 12010900-001DMSD	MSD	Units µg/L					RPD	Limit 20	Date
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref V	/al %RPD	Analyzed
Lead	2.00		13.4	15.0	2.0461	75.7	13.8153	3.06	01/26/2012
STANDARD METHODS 18TH I	ED. 3030 E, 31	13 B, METALS	BY GFAA		COLUMN TO THE REAL PROPERTY.	1. 1814			1.2.3
Batch 74600 SampType: SampID: MB-74600	MBLK	Units µg/L							Date
Analyses	RL	Qual			SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Lead	2.00		< 2.00	2.00	0	0	-100	100	01/26/2012
Batch 74600 SampType: SampID: LCS-74600	LCS	Units µg/L							Date
	DI	Qual	D14	Cnilco	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Analyses	RL	Ouai	Resuit	SUIKE	OI IVIVOI VAI	/01 \LO	LOW LITTLE	ingii Liiiii	-



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Client: Barr Engineering Company

Work Order: 12010900

Client Project: Leadwood MTS-25/86-0013

STANDARD METHO	DS 18TH E	ED. 303	30 E, 311	3 B, METALS	BY GFAA	1				i daga	
Batch 74600 SampID: 12010900-00	SampType: 02CMS	MS		Units µg/L							Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Lead			4.00		44.2	15.0	26.9757	114.8	70	130	01/26/2012
Dutten									RPD	Limit 20	
SampID: 12010900-00	02CMSD										Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref V	'al %RPD	Analyzed
Lead			4.00		40.4	15.0	26.9757	89.4	44 1968	9.00	01/26/2012



Receiving Check List

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Client: Barr Engineering Company Work Order: 12010900 Client Project: Leadwood MTS-25/86-0013 Report Date: 01-Feb-12 Carrier: Rick Schmidt Received By: SRH Completed by: Reviewed by: On: On: 25-Jan-12 25-Jan-12 Heather L. Riley Michael L. Austin Pages to follow: Chain of custody Extra pages included No 🗌 Not Present Yes 🗹 Temp °C Shipping container/cooler in good condition? Ice 🗹 Type of thermal preservation? Blue Ice Dry Ice None \checkmark Chain of custody present? Yes No 🗌 \checkmark Chain of custody signed when relinquished and received? Yes No 🗌 **V** Chain of custody agrees with sample labels? No 🗆 Yes Samples in proper container/bottle? Yes No 🗔 Yes 🗹 Sample containers intact? No Yes 🗹 No 🗌 Sufficient sample volume for indicated test? All samples received within holding time? Yes No 🗀 Field Lab 🗌 ~ Reported field parameters measured: Yes 🗹 No 🗌 Container/Temp Blank temperature in compliance? When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected. Water - at least one vial per sample has zero headspace? Yes 📙 No 🗀 No VOA vials \checkmark No 🗌 Water - TOX containers have zero headspace? Yes 🗌 No TOX containers Yes 🗹 No 🗌 Water - pH acceptable upon receipt?

Any No responses must be detailed below or on the COC.

Custody seal intact upon courier pick up. RLS 1/26/12

Teklab Chain of Custody

5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618)344-1004 ~ Fax:(618)344-1005

	Barr Enginee	ering Co.]	Are the samples chilled? Yes No with: Ice Blue ice Pro										Servedin & Lab O Field IEKIAD. Inc. CONTIET Pick Up					
	1001 Diamor	nd Ridge, Suite 11	Cooler Temp	Cooler Temp 5.1 Sampler Chris Schulte								(Courses Pick Up						
	Jefferson Cit	у		Invoice to Mark Nations. Results to Allison Olds and Mark Nat															
	Leadwood M	ITS - 25/86-0013	Comments	Advantage C.I. DE 7										1-25	-12				
	Contact Allis	son Olds	eMail -	aolds@barr.	com Pho	one 573-63	38-5007			-	-			•	ontract w				
						· •		- "		Settleable Solids ×		Total Metals	Dissolved Metals *	less ×					
	Lab Use	Sample ID	:	Sample Date/Tim	e Preservative	Matrix	F	T.5.5.	Sulfate	Settle	7.0.5	Total	DISSO	Hardness		}	[
281	900-001	LW-001		1/24/12/ 7:	Unpres 5	Aqueous	\boxtimes	X	X	×	\boxtimes	$\overline{\mathbf{X}}$	X	\boxtimes					
• , ,	-002	LW-002		9:1	Unpres 5	Aqueous	\square	X	\boxtimes	X	X	X	X	\boxtimes	(a)				
	-w3	LW-Dup		9:2	Unpres 5	Aqueous	\boxtimes	X	\boxtimes	Ø	X	\boxtimes	X	X					
	-004	LW-DS		9:	Unpres 5	Aqueous	\square	×	\boxtimes		X	\boxtimes	X	X					
	-005	LW-US		7:3	Unpres 5	Aqueous		\boxtimes	\boxtimes		X	×	\boxtimes	\boxtimes					
					Unpres	Aqueous													
					Unpres	Aqueous													
					Unpres	Aqueous													
		Relinquished	Ву *		Date/Time					Recei	ved By		<u> </u>	Date/Time					
	R. Shin	-51-/6	1/24/12	Sta	Stoppine Haynes						09.15	1-25-12 09:15							

^{*}The individual signing this agreement on behalf of client acknowledges that they have read and understand the terms of this agreement and that they have the authority to sign on behalf of client.